INDUS-THERM™

HEAT TRANSFER & REFRIGERANT OILS

Thermal Control for Industrial, Commercial and Process Applications

Introduction

Modern industrial systems depend on controlled heating and cooling to protect equipment, maintain product quality and keep processes operating efficiently. Heat transfer fluids carry thermal energy around closed-loop systems, while refrigeration compressor lubricants protect the moving parts that make cooling possible.

Rock Oil's heat transfer and refrigeration range supports high-temperature thermal circuits, low-temperature cooling loops, food and beverage processing, industrial refrigeration, HVAC, cold storage, pharmaceutical production, plastics manufacturing, renewable energy and other demanding applications.

The range brings together mineral and synthetic heat transfer fluids, low-toxicity and high-efficiency glycol products, system-cleaning technology and specialist compressor lubricants for ammonia, carbon dioxide, HFC and selected hydrocarbon or synthetic refrigerants. Correct fluid selection helps maintain stable temperatures, reduce deposits and corrosion, protect pumps and compressors, and extend service life.

Key Benefits of the Range

- Efficient heat transfer and stable thermal performance
- Protection against oxidation, corrosion, fouling and deposits
- Low-temperature flow and freeze protection
- High-temperature stability in closed-loop systems
- Compatibility options for pumps, seals, pipework and common system materials
- Solutions for ammonia, carbon dioxide, HFC and other refrigeration technologies
- Food-grade and lower-toxicity options for sensitive processing environments

Typical Applications

- Process heating and cooling systems
- Heat exchangers, jacketed vessels, coils and thermal oil circuits
- Industrial ovens, dryers, plastics and chemical processing
- Food, beverage and pharmaceutical production
- HVAC, heat pumps, geothermal and solar thermal systems
- Cold stores, deep-freeze chains and industrial refrigeration
- Refrigeration and air-conditioning compressors

HEAT TRANSFER & REFRIGERANT OILS

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The range is organised into three product categories so that fluid chemistry, temperature capability and application requirements can be considered together.

Category	Purpose	Core Products
Mineral and synthetic heat transfer fluids	Closed-loop heating and cooling from very low start-up temperatures to high-temperature thermal systems	INDUS-FOODSAFE™ HTF, INDUS-THERM™ M, LT, PAO and CLEAN, plus legacy INDUS-THERM™ R 6 and INDUS-THERM™ M 30 products
Glycol-based heat transfer fluids	Water-based heating, cooling, frost protection and corrosion control	GLYSOFOR N and GLYSOFOR L in application-specific concentrations
Refrigeration compressor lubricants	Lubrication, sealing and heat removal in systems using defined refrigerants	INDUS-THERM™ RL PAO, RL NH3, RL CO2 and RL POE viscosity grades

European Heat Transfer Fluid Market

The European market data supplied for this brochure indicates steady growth across all major heat transfer fluid types. Mineral oils remain the largest category by volume, while synthetic and glycol-based fluids are forecast to grow more quickly as operating demands, energy targets and application-specific requirements increase.

Product Type	2023 Volume kt	2024 Volume kt	2029 Forecast kt	2024 to 2029 CAGR
Mineral oils	97.9	99.4	108.6	1.8%
Synthetic fluids	67.5	69.6	82.7	3.5%
Glycol-based fluids	26.3	26.9	30.8	2.8%
Other product types	7.0	7.1	7.5	1.1%
Total	198.6	203.0	229.7	2.5%

Source: MarketsandMarkets. Volumes are shown in kilotonnes.

Selecting the Correct Heat Transfer Fluid

Fluid selection should start with the complete operating envelope, not a single headline temperature. The minimum start-up temperature, minimum continuous operating temperature, maximum bulk temperature and maximum film temperature can all influence pumpability, heat transfer efficiency and service life.

- Minimum and maximum operating temperatures
- Whether the system provides heating, cooling or both
- Heater type, including fired, electric, steam or indirect systems
- Process application and the possibility of incidental food contact
- Existing fluid chemistry and the compatibility of any replacement fluid
- System metals, seals, elastomers, pumps and pipework
- Required heat transfer efficiency, thermal stability and product purity
- Flow, viscosity and start-up requirements at the lowest ambient temperature

Rock Oil can support product selection using system temperatures, application details and information about the existing fluid. A compatibility review is particularly important before changing fluid chemistry.

Fluid Analysis and Service Life

Heat transfer fluids degrade gradually in service, but oxidation, excessive temperature, contamination and poor system condition can accelerate the process. Routine analysis can identify increasing acidity, viscosity change and changes in the boiling or distillation range before deposits, restricted flow or unplanned downtime develop.

- Test fluid in a newly commissioned system within 9 to 12 months of start-up.
- When new fluid is installed in an existing system, establish a baseline within the first month.
- Test annually thereafter, or more often in critical systems and severe operating conditions.
- Typical monitoring includes total acid number, kinematic viscosity and distillation range.
- Use trend data to determine whether continued service, cleaning, filtration or fluid replacement is required.

Operating within the recommended temperature limits, minimising exposure to air, maintaining effective filtration and correcting leaks or contamination all help extend fluid life. Nitrogen blanketing of the expansion tank can reduce oxidation, while side-stream filtration can support long-term system cleanliness.

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Mineral and Synthetic Heat Transfer Fluids

Rock Oil's mineral and synthetic heat transfer fluids cover economical high-temperature service, premium food-grade processing, very low-temperature start-up and wide-range heating and cooling. INDUS-THERM™ CLEAN supports systems affected by sludge and restricted flow without requiring a separate flushing-fluid stage.

Heat Transfer Fluid Selection Overview

Product	Code	Chemistry	Min Start Up	Min Operating	Max Bulk Operating	Positioning
INDUS-FOODSAFE™ HTF	13401	Highly refined hydrocarbon	-4°C	36°C	332°C	Premium food-grade fluid
INDUS-THERM™ M	13441	Hydrotreated paraffinic mineral	-1°C	44°C	316°C	Economical food-grade fluid
INDUS-THERM™ LT	13451	Synthetic hydrocarbon	-80°C	-50°C	232°C	Very-low-temperature heating and cooling
INDUS-THERM™ PAO	13461	Synthetic hydrocarbon PAO	-38°C	0°C	304°C non-fired 288°C fired	Wide-range synthetic fluid
INDUS-THERM™ CLEAN	13471	Cleaning additive	N/A	11°C	288°C	In-service system cleaner
INDUS-THERM™ R 6	12440	Low-viscosity diathermic fluid	Not stated	Not stated	Not stated	Legacy oil-filled radiator fluid
INDUS-THERM™ M 30	26032	Mineral heat transfer fluid	Not stated	-10°C	320°C	Legacy closed-loop heating fluid

Minimum operating temperature is the temperature at which viscosity is approximately 20 cP. Minimum start-up temperature is the temperature at which viscosity is approximately 300 cPs. Values are typical and product-specific limits must be confirmed against the current TDS and system design.

HEAT TRANSFER FLUIDS AND SYSTEM CLEANERS

INDUS-FOODSAFE™ HTF

Premium Food-Grade Heat Transfer Fluid

Product code 13401

A premium, highly refined hydrocarbon fluid for closed-loop heating and cooling in regulated processing environments where incidental food contact may occur.

Key Properties and Applications:

- Food, beverage, pharmaceutical and packaging processes
- Jacketed vessels, ovens, fryers, heat exchangers and processing lines
- High-purity, low-viscosity formulation for efficient heat transfer
- Strong thermal stability and resistance to fouling and carbon deposits
- Indicative start-up to maximum bulk operating range from -4°C to 332°C

INDUS-THERM™ M

Economical Food-Grade Mineral Heat Transfer Fluid

Product code 13441

A cost-effective, highly refined mineral heat transfer fluid for stable high-temperature service in closed-loop liquid-phase systems.

Key Properties and Applications:

- Food and beverage, extraction, drying, plastics, polymer and textile processes
- Economical mineral-oil performance with robust thermal stability
- Resists oxidation, thermal cracking and fouling
- Components listed under FDA 21 CFR 178.3570 and meets L-QB300 requirements
- Maximum bulk operating temperature of 316°C and maximum film temperature of 338°C

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HEAT TRANSFER FLUIDS AND SYSTEM CLEANERS

INDUS-THERM™ LT

Very-Low-Temperature Synthetic Heat Transfer Fluid

Product code 13451

A low-viscosity synthetic hydrocarbon fluid for systems that need reliable heating and cooling at exceptionally low temperatures.

Key Properties and Applications:

Speciality chemical, extraction, food, beverage and pharmaceutical processing

Non-aqueous heat-transfer medium for water-sensitive manufacturing

Single-fluid heating and cooling with efficient performance below -29°C

Minimum operating temperature of -50°C and start-up capability to -80°C

Odourless formulation using components listed under FDA 21 CFR 178.3570

INDUS-THERM™ PAO

Wide-Range Synthetic Heat Transfer Fluid

Product code 13461

A synthetic PAO fluid for efficient heating and cooling across a broad operating range, including demanding cold-start applications.

Key Properties and Applications:

Chemical, extraction, food, beverage, plastics, polymer and textile processes

Single-fluid heating and cooling for wide-temperature-range systems

Start-up capability to -38°C

Maximum bulk temperature of 304°C in non-fired heaters and 288°C in fired systems

Low viscosity, low vapour pressure and components listed under FDA 21 CFR 178.3570

HEAT TRANSFER FLUIDS AND SYSTEM CLEANERS

INDUS-THERM™ CLEAN

Plan Maintenance and Reduce Unwanted Downtime

Product code 13471

INDUS-THERM™ CLEAN tackles sludge while a mineral-oil heat transfer system remains in service. Cleaning can take place ahead of a planned drain and refill, helping operators avoid an unexpected shutdown and schedule maintenance around production.

Key Properties:

Reduces the risk and cost of unplanned downtime by moving cleaning into normal operation

Allows the final shutdown, drain and refill to be planned around production schedules

Suspends and dissolves sludge to help restore circulation and heat transfer efficiency

Compatible with mineral-oil heat transfer fluids and eliminates a separate flushing-fluid stage

Suitable for asphalt, engineered wood, chemical processing and industrial drying systems

Suggested treat rate of 3% to 12% following fluid analysis; operating range from 11°C to 288°C

Features and Benefits

- Cleans during normal system operation
- Suspends and dissolves sludge deposits
- Compatible with mineral-oil heat transfer fluids
- Eliminates a separate flushing-fluid stage
- Suggested treat rate from 3% to 12% of system volume following fluid analysis
- Operating range from 11°C to 288°C

Typical Applications

- Asphalt processing and storage
- Engineered wood and building materials
- Chemical processing and industrial drying
- Mineral-oil heat transfer systems affected by sludge or restricted flow

HEAT TRANSFER & REFRIGERANT OILS

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LEGACY HEAT TRANSFER FLUIDS

The products below remain available for established customer applications. For new projects, the current INDUS-THERM™ range should be considered first so that temperature capability, fluid life and system requirements can be matched to the latest product technology.

INDUS-THERM™ R 6

Product code 12440

A high-quality, low-viscosity diathermic heat transfer fluid developed specifically for oil-filled radiators. Anti-oxidation additives help prolong service life, while the ultra-thin formulation supports circulation from cold and consistent heat transfer performance.

Key Properties and Applications:

- Designed for oil-filled radiators requiring a low-viscosity heat transfer medium
- Excellent heat transfer properties
- Ease of circulation during cold start-up
- Anti-oxidation protection for long, trouble-free service
- Low viscosity of 5.7 cSt at 40°C
- Pour point of -33°C

INDUS-THERM™ M 30

Product code 26032

A high-quality mineral heat transfer fluid with anti-oxidation protection, low vapour pressure, high specific heat and strong thermal stability. It is recommended for non-pressurised, closed, liquid-phase heating systems operating at bulk fluid temperatures up to 320°C.

Although INDUS-THERM™ M 30 has excellent oxidation stability, exposure to air should be minimised—particularly where the fluid in the expansion chamber may exceed 50°C.

Key Properties and Applications:

- Food, construction, plastics, timber and metal processing
- Industrial laundries and marine systems
- Waste-heat recovery from flue gases
- Excellent and consistent heat transfer performance
- Low vapour pressure and strong thermal stability
- Normal bulk-fluid operating range from -10°C to 320°C
- Anti-oxidation protection for extended service life

GLYCOL-BASED HEAT TRANSFER FLUIDS

Glycol-based fluids are used where heat transfer, cooling, freeze protection and corrosion inhibition are required in water-based systems. The two GLYSOFOR products provide different balances of thermal efficiency and toxicity.

GLYSOFOR N uses monoethylene glycol and offers lower viscosity for easier circulation and efficient heat transfer. GLYSOFOR L uses monopropylene glycol and is preferred where lower toxicity is important, including food, beverage, pharmaceutical and environmentally sensitive applications.

Property	GLYSOFOR N	GLYSOFOR L
Base chemistry	Monoethylene glycol MEG	Monopropylene glycol MPG
Operating temperature range	-50°C to +150°C	-50°C to +150°C
Appearance	Pink liquid	Blue liquid
Density at 20°C	1.12 g/cm³	1.045 to 1.055 g/cm³
pH	7.3 to 8.3	7.5 to 8.5
Boiling point at 1013 mbar	Approximately 197°C	Approximately 187°C
Vapour pressure at 20°C	0.053 mbar	0.11 mbar
Dynamic viscosity at 20°C	21 mPa s	55 mPa s
Specific heat at 20°C	2.35 kJ/kg K	2.49 kJ/kg K
Thermal conductivity at 20°C	0.29 W/m K	0.22 W/m K
Minimum applied concentration	20% by volume	25% by volume
Primary selection reason	Lower viscosity and higher heat transfer efficiency	Lower toxicity for sensitive environments
Food and beverage use	Not recommended	Preferred option where lower toxicity is required

Typical physical properties refer to the concentrated product data.
Properties and freeze protection change with concentration.

HEAT TRANSFER & REFRIGERANT OILS

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GLYCOL-BASED HEAT TRANSFER FLUIDS

GLYSOFOR N

High-Efficiency MEG Heat Transfer Fluid

Available as pre-diluted concentrations and concentrate

A biodegradable monoethylene glycol fluid for efficient heating, cooling, refrigeration, frost protection and corrosion control in closed-loop systems.

Key Properties and Applications:

Industrial heating and cooling, heat pumps, geothermal and secondary refrigeration loops

Automotive, electric-vehicle and charging-station cooling circuits

Lower viscosity for efficient circulation and heat transfer

Operating range from -50°C to +150°C, with frost protection determined by concentration

Inhibited formulation protects against corrosion, deposits, sludge and biofilms

Not recommended for food and beverage applications; use GLYSOFOR L where lower toxicity is required

GLYSOFOR N Concentrations

GLYSOFOR N is supplied at different concentrations so that frost protection can be matched to the lowest expected system temperature. The percentage in each product name is the GLYSOFOR N concentration by volume.

Concentration	Product Code	Approximate Frost Protection
20%	15780	-9°C
25%	15781	-12°C
30%	15782	-16°C
35%	15800	-20°C
40%	15801	-25°C
45%	15802	-31°C
50%	15803	-38°C
55%	15804	-45°C
58%	15805	Approximately -51°C
Concentrate	15806	For controlled dilution

GLYCOL-BASED HEAT TRANSFER FLUIDS

GLYSOFOR L

Low-Toxicity MPG Heat Transfer Fluid

Available in 25% to 50% concentrations

A biodegradable, lower-toxicity monopropylene glycol fluid for heat transfer, refrigeration, frost protection and corrosion control in sensitive applications.

Key Properties and Applications:

Food, beverage and pharmaceutical production, including dairies, breweries, meat and fish processing

Cold stores, heat pumps, solar, geothermal and environmentally sensitive systems

Lower-toxicity MPG formulation with an operating range from -50°C to +150°C

Protects common metals and helps prevent frost damage, corrosion, deposits, sludge and biofilms

Suitable for electric-vehicle cooling circuits and charging stations

Suitable for sprinkler systems covered by the stated FM Global specifications

GLYSOFOR L Concentrations

GLYSOFOR L is available as pre-diluted products from 25% to 50% concentration. Selection should allow a suitable margin below the minimum expected system temperature.

Concentration	Product Code	Approximate Frost Protection
25%	15810	-11°C
30%	15811	-14°C
35%	15812	-18°C
40%	15813	-22°C
45%	15814	-26°C
50%	15815	-32°C

HEAT TRANSFER & REFRIGERANT OILS

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REFRIGERATION COMPRESSOR LUBRICANTS

A refrigerant absorbs heat at low temperature and releases it at a higher temperature as it circulates through a refrigeration system. The refrigerant changes between liquid and vapour, while the compressor lubricant protects bearings and moving parts, supports sealing and removes heat from the compressor.

The refrigerant and lubricant come into direct contact, so their chemical interaction is critical. The lubricant must maintain an effective viscosity in a refrigerant-rich environment, remain stable at operating temperatures and support oil separation and return. There is no universal lubricant for a refrigerant; compressor type, temperatures, pressure, materials, system design and OEM requirements must also be considered.

The INDUS-THERM™ RL range is intended for initial fill and service fill in defined refrigeration and air-conditioning applications. It also supports aftermarket maintenance where the original equipment specification and any warranty requirements have been checked.

Refrigerant Types

Refrigerant Type	Identifier	Typical Use	Lubricant Considerations
Ammonia	R717	Cold stores, food processing, pharmaceuticals, ice rinks, industrial refrigeration and large heat pumps	Mineral and PAO lubricants have limited ammonia solubility. POE esters must not be used because ammonia can react with them to form amides.
Carbon dioxide	R744	Supermarket refrigeration, heat pumps, transport refrigeration and industrial systems	Systems operate at high pressure. Refrigerant solubility can reduce viscosity, so dedicated POE products and the compressor specification are important.
Hydrochlorofluorocarbon	R22	Legacy commercial and industrial refrigeration and air conditioning	System age, refrigerant management rules and the original lubricant chemistry must be reviewed before service filling.
Hydrofluorocarbons	HFC	Air conditioning, commercial refrigeration and heat pumps	POE lubricants are widely used. Many HFCs have high global warming potential, although they have zero ozone-depletion potential.
Hydrofluoroolefins and blends	HFO	Lower-GWP air conditioning, refrigeration and heat-pump systems	POE or another specified synthetic lubricant may be required. Some refrigerants are mildly flammable and require compatible equipment.
Hydrocarbons	HC	Selected commercial and industrial refrigeration systems	Low-GWP refrigerants with flammability considerations. Use only the lubricant specified for the refrigerant and compressor.

REFRIGERATION COMPRESSOR LUBRICANTS

Lubricant Chemistry and Product Fit

Rock Oil Product	Chemistry	Primary Refrigerant or Duty	Selection Notes
INDUS-THERM™ RL NH3 68	Hydrotreated mineral oil	R717 ammonia and process gas compressors	Low carry-over, low volatility and a -43°C pour point. Suitable for ammonia evaporator temperatures above -43°C.
INDUS-THERM™ RL PAO 5 32 68	Polyalphaolefin PAO	R717 ammonia, R22 and specialist compressor, vacuum-pump or sealing duties	Low volatility, strong thermal and oxidative stability, mineral-oil compatibility and components listed under FDA 21 CFR 178.3570.
INDUS-THERM™ RL CO2 68	Polyol ester POE	R744 carbon dioxide, hydrocarbon and selected synthetic refrigerants	Dedicated ISO VG 68 service and initial-fill lubricant with strong low-temperature, chemical and thermal stability.
INDUS-THERM™ RL 32 46 68	Polyol ester POE	RL 32 and RL 68: HFC refrigerants. RL 46: carbon dioxide, hydrocarbon and selected synthetic refrigerants.	Core service-fill range. Final viscosity and compatibility must follow compressor and refrigerant requirements.

Refrigerant and Product Compatibility Matrix

Refrigerant	RL PAO Range	RL NH3 68	RL CO2 68	RL 32	RL 46	RL 68
Ammonia R717	✓	✓	–	–	–	–
Carbon dioxide R744	–	–	✓	–	✓	–
R22	✓	–	–	–	–	–
HFC refrigerants	–	–	–	✓	–	✓
Hydrocarbon refrigerants	–	–	✓	–	✓	–
Selected synthetic refrigerants and HFO blends	–	–	✓	–	✓	–

A tick identifies product and refrigerant pairings stated in the supplied product information. Final selection remains subject to compressor design, operating conditions and the equipment manufacturer's approved lubricant specification.

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REFRIGERATION COMPRESSOR LUBRICANTS

Compressor and Viscosity Guidance

The table below provides general guidance on viscosity grades within the Rock Oil range for different compressor types. Final selection must follow the compressor manufacturer's approved lubricant specification and account for the refrigerant and operating conditions.

Compressor Type	ISO VG 32	ISO VG 46	ISO VG 68	Guidance
Reciprocating	Typical option	Typical option	Typical option	Confirm refrigerant solubility, discharge temperature and oil return
Rotary vane	-	Typical option	Typical option	Check film strength and operating temperature
Scroll	Typical option	Typical option	Typical option	Follow the OEM refrigerant and viscosity specification
Centrifugal	Typical option	Typical option	Typical option	Selection depends strongly on system and refrigerant design
Screw	-	-	Typical option	Ammonia screw compressors may use INDUS-THERM™ RL NH3 68 where specified

INDUS-THERM™ RL PAO 5 is a specialist low-viscosity product and is not represented in this ISO VG 32 to 68 comparison.

REFRIGERATION COMPRESSOR LUBRICANTS

INDUS-THERM™ RL PAO Range

Premium PAO Refrigeration Compressor Lubricants

Product codes

13412 ISO VG 5
13422 ISO VG 32
13432 ISO VG 68

A premium PAO compressor-lubricant range combining strong thermal and oxidative stability with low volatility across a wide temperature range.

Key Properties and Applications:

Available in RL PAO 5, 32 and 68 grades

Suitable for R717 ammonia and R22 duties where the selected grade is approved

Compressor lubricant and coolant, liquid-ring vacuum-pump and sealing-fluid applications

Low volatility and excellent lubricity for reduced maintenance and efficient operation

Compatible with mineral-oil lubricants and formulated using components listed under FDA 21 CFR 178.3570

INDUS-THERM™ RL NH3 68

Mineral Refrigeration Compressor Lubricant for Ammonia

Product code 13481

A hydrotreated ISO VG 68 mineral lubricant for ammonia and process-gas compressors, formulated for dependable operation with low carry-over and low volatility.

Key Properties and Applications:

R717 ammonia refrigeration in food processing, cold stores, warehouses and large heat pumps

Process-gas rotary screw and reciprocating compressors

Suitable for ammonia evaporator temperatures above -43°C

Enhanced oxidation stability and corrosion protection for longer system life

Low carry-over supports evaporator efficiency; low volatility reduces consumption and top-ups

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REFRIGERATION COMPRESSOR LUBRICANTS

INDUS-THERM™ RL CO2 68

Synthetic POE Refrigeration Compressor Lubricant for Carbon Dioxide

Product code 13491

An ISO VG 68 synthetic POE lubricant developed for refrigeration and air-conditioning compressors using R744 carbon dioxide, hydrocarbon and selected synthetic refrigerants.

Key Properties and Applications:

R744 systems in supermarkets, heat pumps, transport and industrial refrigeration

Selected hydrocarbon and synthetic refrigerant systems where specified

Suitable for both initial fill and service fill

Effective wear protection for steel and aluminium surfaces

Strong chemical and thermal stability with low-temperature capability

INDUS-THERM™ RL Range

Core Synthetic POE Refrigeration Compressor Lubricants

Product codes

13501 ISO VG 32
13511 ISO VG 46
13521 ISO VG 68

A core synthetic POE range for refrigeration and air-conditioning compressor service, available in ISO VG 32, 46 and 68 for initial fill and service fill.

Key Properties and Applications:

Commercial and industrial refrigeration, HVAC, air-conditioning and heat-pump applications

RL 32 and RL 68 for HFC refrigerants where specified

RL 46 for carbon dioxide, hydrocarbon and selected synthetic refrigerants where specified

Effective wear protection for steel and aluminium surfaces

Strong chemical and thermal stability with dependable low-temperature performance

Please Note

The values in this brochure are typical and should not be treated as product specifications. Temperature limits, registrations, material compatibility and refrigerant suitability vary by product and system. Refer to the current technical data sheet and the equipment manufacturer's approved lubricant requirements before selection or use.

Technical Support and Fluid Analysis

Where a change of fluid or product chemistry is being considered, compatibility should be reviewed carefully before any new fluid is introduced. Rock Oil can also provide fluid analysis support to help assess fluid condition, identify potential degradation and inform ongoing maintenance or replacement decisions.

For product selection, compatibility guidance or fluid analysis support, please contact Rock Oil's technical team.

Choosing the Correct Compressor Lubricant

A refrigerant identifier alone is not enough to select a compressor lubricant. Rock Oil can help identify a suitable product when the equipment serial number, part number and operating information are available.

- Refrigerant type and concentration in the lubricant during operation
- Compressor type and the manufacturer's approved lubricant specification
- Required viscosity at evaporating and discharge temperatures
- Operating pressure and system thermal load
- Oil separation, circulation and return arrangement
- Miscibility and solubility with the refrigerant
- Compatibility with metals, seals, elastomers and existing oil
- Whether the fluid is being used for initial fill, top-up or a full changeover
- Warranty, maintenance-contract and service-fill requirements

The compressor manufacturer's approved lubricant specification should always be followed. Where a top-up or conversion is proposed, compatibility must be checked before fluids are mixed or introduced into the system.

Common Questions

How Do I Select the Right Heat Transfer Fluid?

Start with the system's minimum and maximum temperatures, heater type, construction materials, flow requirements and whether the circuit provides heating, cooling or both. Also consider food-contact requirements and the chemistry of the existing fluid. Consult current technical data before changing products.

What Causes Heat Transfer Fluid to Degrade?

Oxidation, excessive film or bulk temperature, contamination and poor system condition can increase acidity and create sludge or carbon deposits. These changes can restrict flow, reduce heat transfer efficiency and contribute to higher energy use or unplanned downtime.

How Can Fluid Life Be Extended?

Operate within the recommended limits, minimise exposure to air, maintain effective filtration and correct leaks or contamination promptly. Expansion-tank management and nitrogen blanketing, where appropriate, can help control oxidation.

When Should Heat Transfer Fluid Be Tested?

Testing requirements depend on the fluid, system design, operating conditions and maintenance history. Contact Rock Oil to arrange fluid analysis and discuss a monitoring programme suited to your system.

Can Refrigeration Compressor Lubricants Be Topped Up?

Some products are designed for service-fill applications, but top-up suitability depends on the existing lubricant, refrigerant, compressor and OEM requirements. Confirm chemistry and material compatibility before mixing fluids; a full changeover may be required where compatibility cannot be demonstrated.

Why Are Miscibility and Solubility Important?

Miscibility affects how the lubricant moves with the refrigerant and returns to the compressor. Solubility affects the lubricant's operating viscosity. Both must be balanced so that the system returns oil effectively while maintaining an adequate lubricating film.